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JOSEPH E. KERNAN, Governor  
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September 23, 2004

Writer's Direct Line

MEMORANDUM  
04-12

TO: District Directors  
Toll Road Operations Engineer  
District Construction Engineers  
District Area Engineers  
Project Engineers/ Supervisors  
District Materials & Tests Engineers  
District Development Engineers

FROM: Dennis A. Kuchler, Chief  
Contracts and Construction Division

RE: Specification Section 306 - Milling

It has come to the attention of this office that the new milling specifications have caused confusion. Recent committee meetings of INDOT, contractor, and industry personnel have taken place to address these issues and changes to the Specifications shall be proposed to the Standards Committee. Until these changes are approved and effective the following guidelines are to be followed to provide consistency in interpreting the Specifications as currently written. These guidelines will be effective for contracts starting immediately and will remain in effect until revisions to the Specifications have been made.

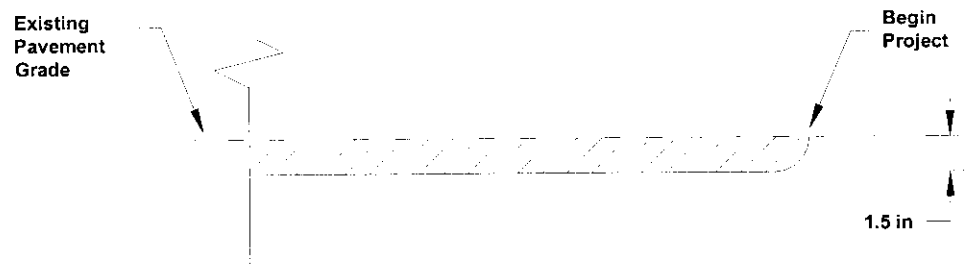
The pay item, transition milling, will only be measured for payment when it is required to cut a vertical transition notch at the beginning and/or end, including paving exceptions, where a new overlay is to be placed. This applies to all pavement including drives and approaches except as noted below. Other milling is not to be paid for as transition milling. For example, two pay items may exist on an approach – one for the transition milling and one for the remainder of the milling if necessary. Transition milling is not required and is not to be measured for payment unless the milled depth is less than the planned overlay. Transition milling must be performed prior to each lay of pavement material except for driveways and public road approaches for which milling should be performed for the surface course only. Transition milling limits for each lay of material should be staggered so as not to overlap.

Transition milling should not be performed at drives unless it is required to meet a permanent surface that continues beyond the construction limits. If the drive is aggregate beyond the construction limits then transition milling should not be performed. Exceptions to this may be approved by the Engineer. Asphalt surface shall still be placed at a minimum depth of 37.5 mm (1.5 in) and the drop off wedged with aggregate. It is often undesirable to operate a milling machine on drives. Care should be taken by the contractor to do what is reasonable to prevent damage. If damage is unavoidable, the drive area within the construction limits may require improvement as directed by the Engineer.

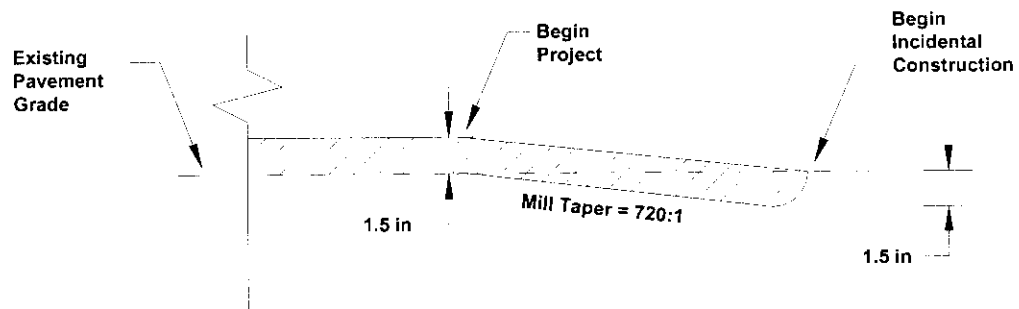
Transverse milled vertical faces greater than 25 mm (1 in) on pavement other than private or commercial drives that are open to traffic shall be protected. Private and commercial drives may require protection dependent on site conditions as determined by the Engineer. Millings are not acceptable for protection except for private and commercial drives. It is acceptable if the contractor elects to raise the milling machine to create a ramp/wedge at the milling limits in lieu of milling down a vertical transition notch and placing protection. This ramp/wedge will require removal before the new material is placed. The length of protection that is appropriate is subjective but should consider depth, type of traffic, and the posted speed limit. An appropriate size shall be used as outlined in the QCP and approved by the Engineer.

The dimensions for mill length and overlay taper indicated on Standard Drawing 402-TMPT-01, "Termination of Mainline Pavement Treatment," should be disregarded. This drawing now requires revision. Transition milling on pavement other than drives and approaches shall be performed at a 720:1 vertical ratio. Transition milling for drives and approaches shall be at a ratio required to achieve a minimum lay rate of 37.5 mm (1.5 in) of surface material for the entire area. As before, the taper rate of the overlay material may be different than that for the milling. However, the planned lay rate shall be tapered down to 37.5 mm (1.5 in) over the length of the transition milling. The base of the limits of milling may be rounded. Otherwise, a neat vertical face should be obtained. Saw cutting is not required except when necessary to remove pavement damaged during construction. Tack coat shall still be required.

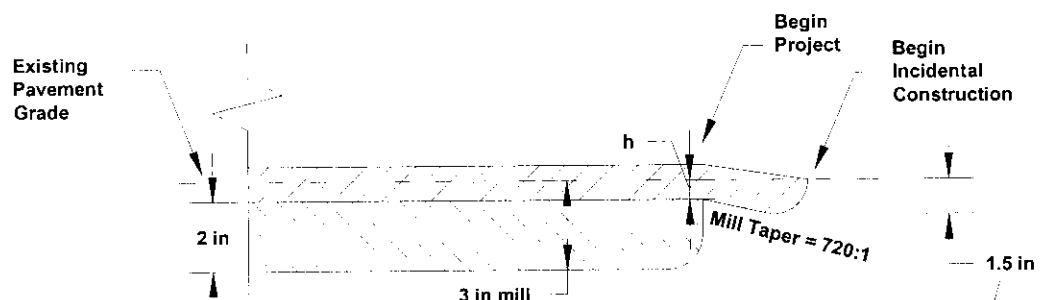
The following sample sketches should help clarify the above concerns and certain paving situations. Pay limits for transition milling (TM) are addressed. The sketches do not cover all situations. Questions may be referred to the Field Engineers.



Example 1. 1.5 inch mill & fill (transition milling not required)



Example 2. 1.5 inch overlay (transition milling required)  
TM pay limits =  $(720:1 \times 1.5 \text{ in}) / (12 \text{ in/ft}) = 90 \text{ ft} \times \text{road width}$



Example 3. 1.5 in Surface on 2 in Intermediate with 3 in milling  
(transition milling required)  
TM pay limits =  $[720:1 \times (1.5 \text{ in} - h)] / (12 \text{ in/ft})$   
 $= [720:1 \times 0.5 \text{ in}] / (12 \text{ in/ft}) = 30 \text{ ft} \times \text{road width}$